SYSTEM COMMANDS

TRSDOS-16 SYSTEM COMMANDS

TRSDOS-16 system commands (typed in at the TRSDOS-16 Ready level) perform a variety of helpful operations:

Diskette Handling commands allow you to prepare your blank diskettes for use or make copies of existing diskettes. Anytime you use a blank diskette, you should use one of these commands:

FORMAT
BACKUP

If you want to change the way your computer system starts up and initializes its parameters, you can use Initialization commands. For example, you can use the FORMS command to set your printer's parameters; or you can use the AUTO command to set your computer to AUTOmatically perform a particular function at start-up. The Initialization commands are:

AUTO	MOUNT
DATE	SETCOM
DISMOUNT	TIME
FORMS	

You might find the Auxiliary commands helpful for such functions as seeing what is on your disk, printing some of your disk files, or simply seeing what system commands are available. They include:

CLEAR	PAUSE
CLS	PRINT
DIR	SIZE
DO	SPOOL
FREE	T
HELP	TERMINAL
LIB	VERIFY
LIST	VERSION

The File Handling commands allow you to copy, rename, or delete your disk files. These commands include:

APPEND	MOVE
ATTRIB	PROT
COPY	PURGE
CREATE	RENAME
FCOPY	RESTORE

KILL SAVE

Machine Language File Handling commands create and execute machine language disk files. These commands include:

DEBUG EXEC
DUMP LOAD

HOW TO USE THIS SECTION

This section contains an alphabetical listing of each system command, with each listing divided into several parts.

The command syntax is the first line you'll see after the command keyword. Use it as your guide to type in a system command. (See SYNTAX below for a detailed explanation)

Following each syntax is a definition of the system command. This tells you exactly what the specific command does.

Next is additional information on the parameters of the command; i.e., what are the values you must supply, what is optional information, and what these options do when included in the command.

After this optional information, you'll find further explanation of the command, including special instructions on the command, switches, and how best to use the command for your purposes.

Finally, each section gives you examples of the command's use.

SYNTAX

The command's "syntax" tells you what format to use when you type the command.

For example, the syntax for the CLS (CLear Screen) command is simply:

CLS

CLS <ENTER> is all you need to type to execute this command.

The syntax for the KILL command includes an optional parameter (a value you supply):

KILL filespec

In this case, the parameter is a TRSDOS-16 filespec (discussed in Chapter 1). For example, if you want to kill the disk file named SAMPLE in Drive 1, you could type:

KILL SAMPLE:1 <ENTER>

Still other commands require additional parameters, such as:

COPY source filespec TO destination {option}

Here you must supply the name of the source filespec you wish to copy and the destination where you want it copied. For example:

COPY NEW/DAT:1 TO NEWDAT/1:2 <ENTER>

makes a copy of the file NEW/DAT, from the diskette in Drive 1, onto the diskette in Drive 2, and then names the new file NEWDAT/1.

Sometimes additional information is required; sometimes it is optional. This optional information is indicated inside braces { }. In the COPY example above, there is one option:

{ABS}

When typing this command, you must decide if you need this option which tells TRSDOS-16 to overwrite any existing files with the same name. If so, type:

COPY NEW/DAT:1 TO NEWDAT/1:2 ABS <ENTER>

You can usually omit the surrounding braces { } unless you include a comment or if the second filespec is optional and omitted.

Although the variable "comment" is not included in every syntax statement, you can add one at any time. Comments are for your information only. For example:

COPY NEW/DAT:1 TO NEWDAT/1:2 {ABS} Latest version

documents the purpose of the COPY command.

You might want to use the comment if you are calling the command from a DO-file (see the DO command) or a program.

Every system command uses some variation of the syntaxes discussed above. Pay attention to each command to know the appropriate parameters and options to use.

APPEND

```
APPEND source filespec TO destination
```

Copies the contents of the source filespec onto the end of the contents of destination. (The contents of the source file remain the same.)

The destination can be a filespec or a drive number.

If it is a drive number alone, TRSDOS-16 will append only if that drive contains a disk file with the same name as the source filespec.

The types of the two files must match, i.e., both must be variable length records (VLRs) or both must be fixed length records (FLRs).

You cannot use the APPEND command with ISAM (indexed access files used by some Compilers such as the COBOL Compiler) files, program files, or TRSDOS-II DO files.

Example

```
APPEND EMPLFILE TO STAFF/LST:3 <ENTER>
```

copies the contents of EMPLFILE onto the end of STAFF/LST on Drive 3.

```
APPEND DOC/NEW:1 TO 2
```

copies the contents of DOC/NEW on Drive 1 to the file of the same name on Drive 2.

ATTRIB

```
ATTRIB filespec {options}
```

Assigns or changes the password and protection level of an existing filespec.

Passwords are initially assigned when the file is created. At that time, the update and access passwords are set at the same value (either the password you specified or a blank password). See TRSDOS-16 FILESPECS in Section 1 of this manual for further explanation of passwords.

The options are:

ACC=password sets the access password to password. If omitted, the access password remains the same.

UPD=password sets the update password to password. If omitted, The update password remains the same.

PROT=level specifies the protection level for access. If omitted, the level is unchanged. The optional protection levels for access to a file are:

NONE	No access
EXEC	Execute only
READ	Read and execute
WRITE	Read, execute and write
RENAME	Rename, read, execute and write
KILL	Kill, rename, read, execute and write (gives access word total access)

This command allows you to assign a file two passwords. The access password could be for the operator. It protects a file's contents at a certain protection level (set by PROT).

For example, if you want an operator to have limited access to a file, you can set the PROTection level to READ. Then, using the access password, the operator will only be able to read and execute the file; not change, rename or kill it.

In the same manner, the update password could be for the programmer. Using the update password, the programmer could change, kill, or rename the same file. (When you use the update password to access a file, TRSDOS-16 ignores the PROTection level.)

In short, the access password allows limited access to a file and the update password allows total access.

Examples

```
ATTRIB DATAFILE  ACC=JUNE1Ø, UPD=NEWDAT <ENTER>
```

sets the access password to JUNE1Ø and the update password to NEWDAT. The PROTection level remains at the previous setting.

```
ATTRIB PAYFILE ACC= ,PROT=READ <ENTER>
```

sets the access password to blanks, leaves the update password the same, and sets the level of protection to allow only reading and execution of PAYFILE.

AUTO

AUTO command line

Stores command line. This command line will automatically execute whenever you start-up TRSDOS-16. (That is, after you enter the date and time, TRSDOS-16 will load, execute the command line, and then display the TRSDOS-16 Ready prompt.)

command line is optional. If you omit it, TRSDOS-16 deletes the AUTO command line currently stored.

The system doesn't check the command line for errors when you first enter the AUTO command line. Errors are detected when the automatic command is actually executed.

Examples

```
AUTO DIR <ENTER>
```

executes the DIRectory command whenever you start-up. The system then returns to TRSDOS-16 Ready.

```
AUTO <ENTER>
```

Turns off the AUTO function currently stored.

```
AUTO DO MYPROG <ENTER>
```

executes the DO-file named MYPROG.

BACKUP

```
BACKUP drivel TO drive2 {options}
```

(FOR FLOPPY DISKETTE USE ONLY)
Makes an exact copy of the source diskette in floppy drivel to the destination diskette in floppy drive2.

If the destination diskette is unformatted, the BACKUP command will format it before copying the source diskette to it.

The options are:

ID=id assigns the name id to the new diskette. If omitted, TRSDOS-16 gives the new diskette the same name as the source diskette.

PW=password indicates the master password of the source diskette. TRSDOS-16 won't duplicate a diskette unless you give the correct password. (All diskettes distributed by Radio Shack use PASSWORD as the master password.)

NEW=password assigns password to the destination diskette. If omitted, TRSDOS-16 uses the password of the source diskette.

ABS instructs TRSDOS-16 to overwrite the data on the destination diskette without prompting.

To make a backup copy, you need at least two floppy diskette drives. If you don't have two floppy drives, use the COPY, FCOPY, or MOVE system commands. (See the appropriate command for further information.)

If you have a new Model 16 (not an Enhanced Model II), you can BACKUP a single-sided diskette to a double-sided diskette. This gives you twice as much disk space. You don't need to tell TRSDOS-16 whether the diskettes are single-sided or double-sided.

You cannot BACKUP a double-sided diskette to a single-sided diskette.

If you want to make a copy of a system diskette, BACKUP is

the only way to do this.

Examples

```
BACKUP Ø TO 1 <ENTER>
```

makes an exact copy of the floppy diskette in Drive Ø to the floppy diskette in Drive 1.

```
BACKUP Ø TO 3 {ID=MODEL16 NEW=FEB23} <ENTER>
```

duplicates the diskette in Drive Ø to the diskette in Drive 3, naming the new diskette "MODEL16" and assigning the master password "FEB23" to it.

```
BACKUP 1 TO Ø <ENTER>
```

allows you to copy a data diskette in Drive 1 to a diskette in Drive Ø. After entering this command, TRSDOS-16 will prompt you to insert the destination diskette in Drive Ø.

CLEAR

```
CLEAR
```

Clears user memory.

Example

```
CLEAR <ENTER>
```

CLS

```
CLS
```

Clears the display and positions the cursor at the top left-hand corner of the display.

Example

CLS <ENTER>

COPY

COPY source filespec TO destination {option}

Copies the source filespec to the destination.

destination can be either a filespec or a drive number. If you use a filespec as the destination, you must also specify the drive number of the disk containing that file, Otherwise, it automatically goes to the primary drive.

If you specify a drive number only as destination, TRSDOS-16 will copy the source file to the disk in that drive, giving the destination file the same name as the source file.

The option is:
ABS tells TRSDOS-16 to overwrite any existing file with the same name without prompting

The source filespec must be a file you can use with TRSDOS-16 or TRSDOS-II. If you cannot, you must FCOPY rather than COPY it. (See FCOPY for details.)

You can make single drive copies of a file. If so, be sure to assign a different filespec for the destination.

Example

COPY OLDFILE:3 TO NEWFILE:4 <ENTER>

makes a copy of OLDFILE from the diskette in Drive 3 to the diskette in Drive 4, naming the new file NEWFILE.

COPY NEW/DAT TO DEFUNCT/DAT:2 ABS <ENTER>

copies NEW/DAT to DEFUNCT/DAT (in Drive 2). If you already have a disk file named DEFUNCT/DAT in Drive 2, this command overwrites it with the new file.

```
COPY NEW/DAT TO 2 <ENTER>
```

copies NEW/DAT to the diskette in Drive 2. The newly copied file is also named NEW/DAT.

```
COPY FILE/BAS:4 TO NEW/BAS:1 <ENTER>
```

copies FILE/BAS from the diskette in Drive 4 to the diskette in Drive 1, naming the new file NEW/BAS.

```
COPY INCTAX/IRS:1 TO INCTAX/82:1 <ENTER>
```

copies the file INCTAX/IRS on the diskette in Drive 1 to the same diskette, renaming the file INCTAX/82.

CREATE

```
CREATE filespec {options}
```

Creates a file named filespec and preallocates space for its contents. Without CREATE, TRSDOS-16 allocates space for your file dynamically as you write to it.

The available options are:

NGRANS=n allocates n X 5 sectors to the file. For example, if you want to allocate 1ØØ sectors to the file, set NGRANS to 2Ø.

NRECS=n assigns n fixed length records to the file. LRL must accompany NRECS.

LRL=n assigns n as the logical record length. n can be 1 to 256. If LRL is omitted, the record length defaults to 256.

TYPE=t specifies the record type as t. t is either F, a fixed length record, or V, a variable length record. If TYPE is omitted, t defaults to F.

NGRANS and NRECS are mutually exclusive. If you use NGRANS, don't use NRECS. If you use NRECS, don't use NGRANS.

When you use CREATE to preallocate a file, TRSDOS-16 does not deallocate unused space at the end of the file. Without CREATE, TRSDOS-16 deallocates the unused space upon closing the file.

Examples

```
CREATE NAMEFILE NGRANS=45Ø,TYPE=F <ENTER>
```

creates a fixed length record file named NAMEFILE with 225Ø sectors.

```
CREATE DATMAS/NJ2 NRECS=1ØØ,LRL=2Ø <ENTER>
```

creates a fixed length record file named DATMAS/NJ2 with 1ØØ logical records of 2Ø bytes each.

```
CREATE MARKET/WST:3 NGRANS=1ØØ,TYPE=V <ENTER>
```

creates a variable length record file on Drive 3 named MARKET/WST and allocates 5ØØ sectors to it.

```
CREATE EMPLY/LST NGRANS=2ØØ,TYPE=F
```

creates a 1ØØØ sector fixed length record file on the diskette in Drive Ø.

DATE

```
DATE
```

Displays the date and time in the format:

```
WED MAR 25 1981 84 -- 16.24.34
```

for Wednesday, March 25, 1981, the 84th day of the year, 4:24:34 p.m. Note that leading zeroes are not shown.

Example

```
AUTO DATE <ENTER>
```

automatically displays the date and time upon startup.

DIR

```
DIR source {options}
```

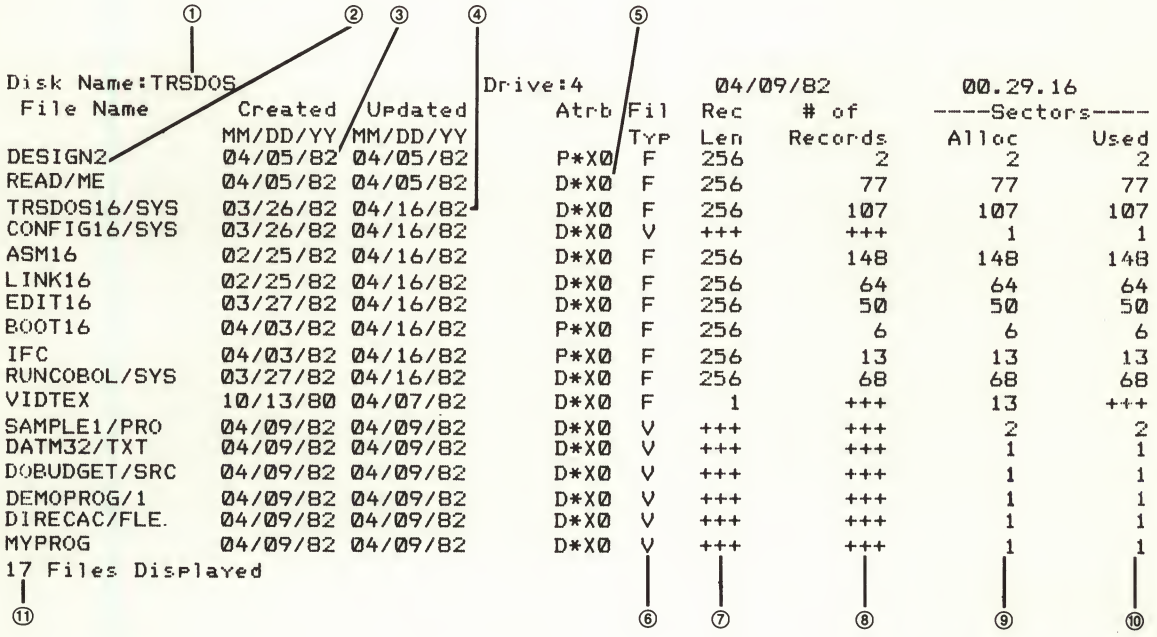
Displays the disk's directory.

source can be a standard TRSDOS-16 filespec, a wildcard, or a drive number (Ø-7). If drive number is omitted, TRSDOS-16 goes to the first available drive.

The options are:

PRT prints the directory listing on the line printer.

SYS displays only the system files (certain Radio Shack files). If you don't use the SYS option, TRSDOS-16 displays only the user files.



What the column headings mean:

1 Disk Name -- The name assigned to the disk when it was formatted or backed-up.

2 File Name -- The name and extension assigned to a file when it was created. (Insert A)

3 Creation Date -- When the file was created.

4 Update -- When the file was last modified.

5 Attributes -- A four-character field.

The first character is either P for Program file or D for Data file.

The second character is either S for System file or * for User file.

The third character gives the password protection status.

- X The file is unprotected (no passwords)
- A The file has an access word but no update word.
- U The file has an update word but no access word.
- B The file has both update and access words.

The fourth character specifies the level of access assigned tot he access word:

- Ø,1 Kill file and everything listed below.
- 2 Rename file and everything listed below.
- 3 Not used.
- 4 Write and everything listed below.
- 5 Read and everything listed below.
- 6 Execute only.
- 7 None.

The ATTRIB command explains how to change the access password, update password, and protection level.

6 File Type -- Indicates the record type for the file.

F Fixed-length records.

V Variable-length records.

7 Record Length -- Assigned when the file was created (applies to fixed-length record files only.)

8 Number of Records -- How many logical records have been written. Plus signs (+) signify none have been written or file has variable length records and number written cannot be calculated. True number of records can be inferred from Sectors Used column.

9 Sectors Allocated -- How many sectors (256 byte blocks) have been allocated to the file.

1Ø Sectors Used -- Shows how many sectors have data written into them. Plus sign (+) means no data in file.

11 Files Displayed -- the number of files on the DIRectory listing.

Figure 1. Sample DIRectory Display

Examples

```
DIR BAST/ASM <ENTER>
```

lists the directory for the file BAST/ASM on the display.

```
DIR 3 PRT <ENTER>
```

lists the directory of the diskette in Drive 3 to the line printer.

```
DIR B*/* <ENTER>
```

displays all files in the directory beginning with the letter B and having an extension.

DISMOUNT

DISMOUNT

Tells TRSDOS-16 that you have removed diskettes in the floppy drives.

The DISMOUNT command informs TRSDOS-16 that you have just taken diskettes out of the drives. Once you enter the DISMOUNT commmand and TRSDOS-16 acknowledges, you can insert different diskettes. See MOUNT for details.

Example

```
DISMOUNT <ENTER>
```

informs TRSDOS-16 that you have removed diskettes from the floppy drives. TRSDOS-16 acknowledges the DISMOUNT by displaying:

```
INIT DONE
```

Now you can insert other diskettes.

DO

```
DO filespec
```

Executes a "DO-file" -- a file containing one or more system commands or programs.

You can create this DO-file with the Editor. The example below shows how.

A DO-file cannot include the SPOOL command. You can load and execute programs from a DO-file and chain DO-files together.

Example

This example creates a sample DO-file that prints the current date and amount of free sectors on the disk in the primary drive whenever you execute it.

You need to use the Editor to create this file. Type:

```
EDIT16 <ENTER>
```

to get into the Editor. The C? prompt is displayed, signifying the Editor's command level.

To begin writing your program, type:

```
IN <ENTER>
```

This puts you in the insert mode, with the prompt I?. You can begin entering command lines. Type:

```
DATE <ENTER>
```

You may not execute the SPOOL command and a DO file at the same time. The first one executed will be given priority over the second.

FREE <ENTER>

These are your command lines. Now save this DO-file under the name HELLO. But first, exit the insert mode. Type:

! <ENTER>

and then, to save the file, type:

SA HELLO <ENTER>

Exit the Editor by typing:

QU <ENTER>

and you can run your DO-file, listed on your directory as HELLO. Type:

DO HELLO <ENTER>

and TRSDOS-16 executes the DO-file named HELLO and prints the date and free list on your display (see the DATE and FREE commands).

DRIVE

DRIVE drive {options}

Allows you to:

1. Gain optimum use of a floppy disk drive by changing the following disk drive settings:
   - seek rate (the rate the computer is able to access the diskette)
   - diskette swap detection
   - wait (for a drive ready condition)
2. Turn secondary floppy or hard disk drives offline.

If you include no options, DRIVE returns the current settings for the specified drive.

The following information offers a thorough explanation of the DRIVE command and all its options. Please read it before using this command.

The options are:

RATE=n (used for floppy drives only.) Sets the seek rate of the floppy disk drive. n may be:
Ø = 3 milliseconds
1 = 6 milliseconds
2 = 1Ø milliseconds
3 = 15 milliseconds
If omitted, setting is not changed.

DETECT (used for floppy drives only.) Sets the diskette swap detection. This causes TRSDOS-16 to check the drive hardware for a "door opened" condition. Set DETECT for Push-Button and Thinline drives.

NODETECT (used for floppy drives only.) Sets the diskette swap to "no detection". This causes TRSDOS-16 to ignore any "door opened" conditions received from the drive hardware. Set the latch drives for NODETECT.

WAIT (used for floppy drives only.) Sets TRSDOS-16 to wait for the drive to gain proper motor speed if a "Drive Not Ready" error occurs, then try again. If the error occurs again, then the drive is considered not ready and an error code is generated. Set WAIT for Thinline drives.

NOWAIT (used for floppy drives only.) Sets TRSDOS-16 to not wait if a "Drive Not Ready" error occurs. Generate error code immediately. Set Push-Button and Latch Drives to NOWAIT.

OFFLINE (all secondary drives) Sets a drive offline. TRSDOS-16 ignores that drive entirely.

ONLINE (all secondary drives) Sets a drive online.

1. GAINING OPTIMUM USE OF FLOPPY DISK DRIVES

When TRSDOS-16 starts up, it initializes each of your floppy drives to the following seek, swap, and wait/nowait settings:

DRIVE	SEEK RATE	SWAP DETECT	WAIT/NOWAIT STATUS
Ø	1Ø ms	DETECT	WAIT
1 - 3	15 ms	NODETECT	WAIT

Any type of Model 16/Model II floppy drive can operate under these settings. However, to get the optimum use out of your particular drive, we suggest you try different settings.

There are three types of drives that could be on your Model 16 or Enhanced Model II computer. Each type of drive has its own set of specifications that determines how it can be set-up.

The three types of drives are:

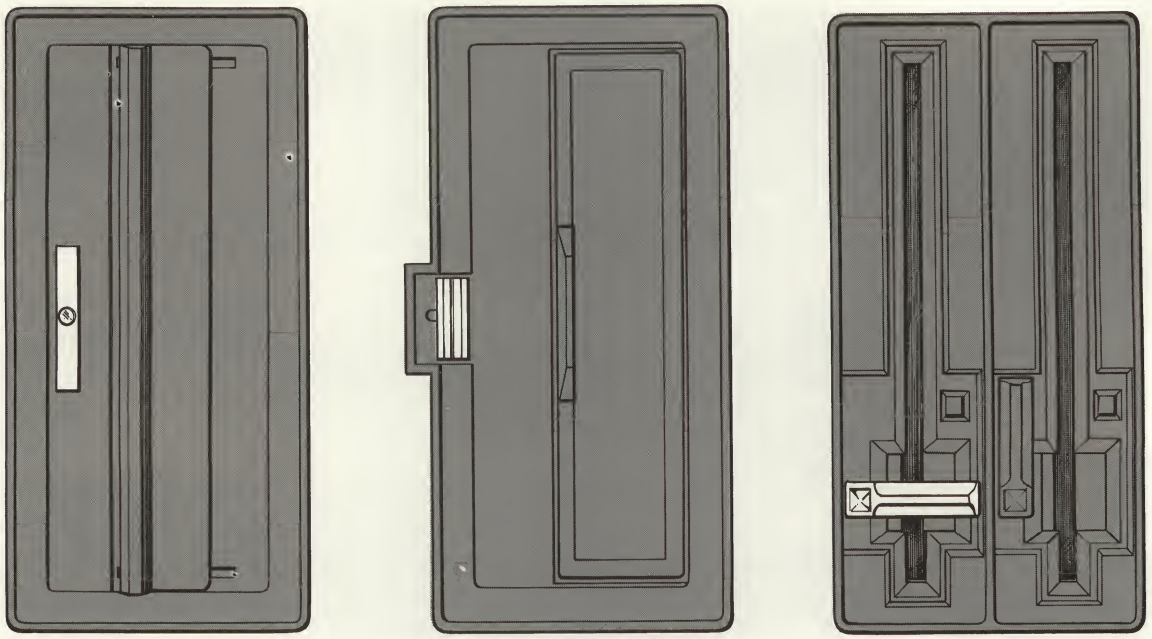
Push-Button	used as Drive Ø in most Model II's and as the secondary drives in some Model II Expansion Bays
Latch	used as the secondary drives in some Model II Expansion Bays
Thinline	used in the Model 16

We suggest you try the following settings for each of these drives.

Drive	Minimum Rate	Swap Detect	Wait / Nowait
Push-Button	1Ø ms	DETECT	NOWAIT
Latch	15 ms*	NODETECT*	NOWAIT
Thinline	3 ms	DETECT	WAIT*

* These settings are required for these particular drives and are set this way at start-up.

You can determine the type of drive you have by looking at the pictures below.



Push-Button Latch Thinline

Figure 2. The three types of drives

When using the DRIVE command with the seek rate, swap detect, and wait options, be sure to note the following:

- When reset, TRSDOS-16 always returns to the start-up settings. Use the AUTO command (or a DO file) to implement the DRIVE command automatically upon power-up or reset.

- If you receive numerous I/O errors on disk reads/writes after changing the seek rate, you probably set it too fast for that particular drive. To remedy this, either issue the DRIVE command again with the proper seek rate or reset the computer.

- Latch drives cannot properly detect if a drive door has been opened since the last disk access. Always set Latch drives with the NODETECT option.

- Thinline drives have a built in feature to reduce the wear on the floppy diskette. If a Thinline drive is not accessed for 2Ø seconds or more, the drive motor shuts off until the next drive access. At the next disk access, it takes approximately 8/1Ø of a second for the motor to reach proper speed.

- Always set Thinline Drives with the WAIT option. If a Thinline Drive is run with the NOWAIT option, a "Drive Not Ready" error will occur since the motor could not reach proper speed before the access.

Examples

If your Drive Ø is a Thinline drive, this command:

```
DRIVE Ø {RATE=Ø,DETECT,WAIT} <ENTER>
```

allows you to get the optimum use out of Drive Ø.

If your drive is Push-Button, this command:

```
DRIVE 1 {RATE=2,DETECT,NOWAIT} <ENTER>
```

allows you to get the optimum use out of Drive 1.

If your drive is a Latch, this command:

```
DRIVE 1 {RATE=3,NODETECT,NOWAIT} <ENTER>
```

allows you to get the optimum use out of Drive 1.

2. TURNING THE DRIVES OFFLINE

The OFFLINE option turns a secondary disk drive OFFLIINE; ONLINE turns it back ONLINE. You can use both options with both hard or floppy secondary disk drives:

- Floppy Drives -- By turning a non-existing or unused secondary floppy drive OFFLINE, TRSDOS-16 will access your disks much more quickly.
- Hard Disk Drives -- If you have more than one hard disk drive, you can MOVE or COPY files to your secondary drive(s), turn these drives OFFLINE, and thus protect your files from access and/or change.

The default is ONLINE. When you turn a drive back ONLINE after it was OFFLINE, you must also use the MOUNT command to reinitialize the drive.

Examples

```
DRIVE 5 {OFFLINE} <ENTER>
```

allows you to protect files on Drive 5 from access.

```
DRIVE 3 {OFFLINE} <ENTER>
```

allows you to tell TRSDOS-16 not to attempt to access Drive 3; this speeds up access time.

```
DRIVE 2 {ONLINE} <ENTER>
```

tells TRSDOS-16 to attempt to access Drive 2.

If you have a Hard Disk, you might find it helpful to create a DO-file (see DO command) containing these commands:

```
DRIVE 6 {ONLINE}
MOVE !:5 TO 6 {ABS}
DRIVE 6 {OFFLINE}
```

This will cause TRSDOS-16 to turn Drive 6 ONLINE, MOVE all the files on Drive 5 to Drive 6 and then turn Drive 6 back OFFLINE.

DUMP

DUMP *filespec* {*options*}

Copies *filespec*, a machine-language program, from memory to disk. You can then load and execute the program at any time.

The *options* can be any or all of the following:

START=*address* sets *address* as the program's starting address.

END=*address* sets *address* as the program's ending address.

TRA=address sets address as the transfer address. This is the address where your program begins executing after you load it. If omitted, DUMP uses the address set by RELO. The transfer address must be less than the ending address.

RELO=address sets address as the starting address for loading the program back into memory. If omitted, **START** is used.

RORT=c specifies the program as c, directly executable from TRSDOS-16 Ready mode. c can be:
R(eturn) loads filespec, but doesn't execute it.
T(ransfer) loads and executes filespec from TRSDOS-16 Ready. If omitted, **RORT=T** is used.

NOTE: All addresses are 24-bit hexadecimal numbers (up to six digits).

Examples

DUMP TEST/FIL START=64FØ, END=6AFØ, TRA=67F2, RORT=R <ENTER>

creates filespec TEST/FIL which contains the program in memory location 64FØ hex to 6AFØ hex. When loaded, it occupies the same memory location. Since this specifies RORT=R, you can't execute the program from TRSDOS-16 Ready mode.

DUMP INTCOM/DMA START=6ØØØ, END=67FF, TRA=31Ø8, RELO=3ØØØ <ENTER>

creates filespec INTCOM/DMA. It contains the program in memory location 6ØØØ hex to 67FF hex. When loaded, the program resides from 3ØØØ to 37FF and execution starts at 31Ø8 hex. You can execute program from the TRSDOS-16 Ready mode by typing:

INTCOM/DMA <ENTER>

EXEC

EXEC filespec

Executes filespec.

The keyword EXEC is optional.

Examples

EXEC JOBLIST <ENTER>

executes JOBLIST.

NAMEDUMP <ENTER>

executes the program NAMEDUMP.

FCOPY

FCOPY source TO destination {options}

Copies disk files that were created with the Model II TRSDOS Operating System to a disk formatted by TRSDOS-16 (or TRSDOS-II) and vice versa.

You must FCOPY any disk files created with Model II TRSDOS before you can use them with TRSDOS-16 or TRSDOS-II. You will get the error -- Illegal I/O Attempt -- if you attempt to use a Model II diskette while operating under TRSDOS-16.

source can be a filespec, wildcard, or drive that you want to copy.

destination can be the drive number that you are FCOPYing to or the filespec you are FCOPYing to. destination can be a filespec only if source is a filespec.

options can be one of the following:

ABS tells TRSDOS-16 to overwrite any data that already exists on the disk

PROMPT tells TRSDOS-16 to prompt you before it copies a file. You should press <Y> yes, <N> no, <Q> quit, or <S> stop asking for prompting.

ALL tells TRSDOS-16 to copy all files. (ALL won't transfer system files, use SYS.) If you use

drive as source, you must use **ALL**.

SYS allows you to FCOPY language and applicaton programs. If used, destination must be primary drive.

In addition to using FCOPY to copy disk files and change their format, you can use FCOPY to get a DIRectory listing of your Model II TRSDOS files while you are in the control of TRSDOS-16.

The syntax is:

FCOPY drive {DIR,SYS,PRT}

When you use the FCOPY command with DIR and SYS, TRSDOS-16 will return the DIRectory according to the way the diskette in drive is formatted. For example, if you enter the command:

FCOPY 1 {DIR,SYS} <ENTER>

and the diskette in Drive 1 is in TRSDOS 2.ØA format, it will return a directory consisting of both System and User files.

On the other hand, if you use the same command on a diskette formatted under TRSDOS-II, it will return a DIRectory of only the System files.

Examples

FCOPY NEWFILE/TXT TO :3 <ENTER>

copies NEWFILE/TXT (contained on a Model II TRSDOS formatted diskette) to the diskette in Drive 3 (a TRSDOS-16 formatted diskette).

FCOPY 1 TO Ø {ALL} <ENTER>

copies all files on the TRSDOS-formatted diskette in Drive 1 to the TRSDOS-16 formatted diskette in Drive Ø.

FCOPY ! TO 1 <ENTER>

copies all files, with and without extensions, from the disk in the primary drive to Drive 1. (See "Wildcards" in Section 2.)

```
FCOPY TRN/TXT:1 TO TRNTXT/OLD:4 <ENTER>
```

copies the file TRN/TXT on the diskette in Drive 1 to the disk in Drive 4, renaming the file TRNTXT/OLD as it copies and reformats.

```
FCOPY 2 {DIR} <ENTER>
```

lists the DIRectory of the Model II TRSDOS diskette in Drive 2.

FILES

FILES source {options}

Returns an alphabetical listing of the filenames that are stored on the specified source.

source can be a standard TRSDOS-16 filespec, a wildcard, or a drive number (Ø-7). If drive number is omitted, TRSDOS-16 goes to the primary drive.

The options are:

SYS lists all system files. SYS is optional; if omitted, TRSDOS-16 lists only the user files.

PRT tells TRSDOS-16 to print the files. PRT is optional; if omitted, lists files on the video display.

This command will list filenames that are stored on the specified drive. This is not the same as DIRectory because only filenames are listed with FILES. FILES lists the filenames alphabetically in five columns (from left to right) across the screen.

FILES allows full wildcarding. For details, see Section I of this manual.

Example

```
FILES */BAS:4 {PRT} <ENTER>
```

lists all files with the extension /BAS on Drive 4 to the printer.

```
FILES 0 {SYS} <ENTER>
```

lists all System files on Drive 0. The System directory is on Drive 0.

FLOPPY

FLOPPY {options}

Tells TRSDOS-16 to ignore all references to floppy drive numbers within filespecs. This is useful when a program includes a reference to a file specification where a drive number is included.

options are:

ON sets FLOPPY ON. TRSDOS-16 does not ignore references to drive number within filespecs.

OFF sets FLOPPY OFF. TRSDOS-16 ignores any references to drive number within filespecs.

If you do not specify option, TRSDOS-16 displays the current status of FLOPPY.

When you enter FLOPPY OFF, TRSDOS-16 ignores any reference to a floppy drive number (0-3) within a system command or program and follows the normal file search sequence (going to the primary drive first).

For example, assume a COBOL program references a file named SAMPLE:2. By turning FLOPPY OFF, TRSDOS-16 will treat this reference as simply SAMPLE (ignoring the drive reference) and look for it on the primary drive first.

The system commands which require a filespec and are affected by FLOPPY are:

ATTRIB	DO	LOAD
APPEND	DUMP	MOVE
COPY	KILL	OPEN
CREATE	LIST	RENAME

Examples

FLOPPY {OFF} <ENTER>

sets FLOPPY OFF so that TRSDOS-16 ignores any references to drive numbers within a filespec entered with a system command or program.

FLOPPY {ON} <ENTER>

turns FLOPPY ON so that TRSDOS-16 uses the drive number referenced in any filespec.

FLOPPY <ENTER>

returns the status of FLOPPY.

FORMAT

FORMAT drive {options}

Prepares a blank disk for use by defining the tracks and sectors, and writing system information onto it. (For more information, see TECHNICAL INFORMATION.)

drive specifies the drive to use for the format operation and can be Drives Ø - 3 and 5 - 7. If omitted, TRSDOS-16 prompts you to enter the drive number.

The options are:

ABS tells TRSDOS-16 to overwrite existing data without prompting. If omitted, TRSDOS-16 warns you before overwriting a disk that contains data.

ID=id assigns a name to the disk being formatted. If omitted, TRSDOS is used.

PW=pw assigns the master password to the disk. If omitted, PASSWORD is used. The master password allows access to all user files (via the PROT command), and also allows full BACKUP privileges.

DIR=nn places the primary directory on cylinder nn. If omitted, TRSDOS-16 uses cylinder 44, (single-sided and double-sided floppy); or

cylinder 13Ø (hard disk). You can put the primary directory on any cylinder from 1 - 71 (single-sided or double-sided floppy); or 1 - 253 (hard disk).

ALT=nn places the alternate directory on cylinder nn, which is a backup of the primary directory. If ALT=ØØ, no alternate directory is created. If you omit the ALT option, it will be at the location of the primary directory plus 3 cylinders (single-sided and double-sided floppy, or hard disk). You can put the alternate directory on cylinders 1 - 71 (single- or double-sided floppy); or 1 - 253 (hard disk).

SIZ=nn tells TRSDOS-16 to allow nn filenames in the initial directory. For hard disks and floppy diskettes, nn can be any number between 1-122Ø. If omitted, the default is 18Ø (single- or double-sided floppy); or 336 (hard disks).

FULL/NONE is the verification level. FULL instructs TRSDOS-16 to read each sector and compare the value against what was written during initialization. NONE instructs TRSDOS-16 not to perform verification.

The disk you format can be blank or already formatted. If it is already formatted, all information is lost when you reformat the disk.

Examples

```
FORMAT 1 {ID=ACCOUNTS,PW=IRS} <ENTER>
```

formats the diskette in Drive 1 and names the diskette ACCOUNTS with the password IRS.

```
FORMAT <ENTER>
```

prompts you for the drive to use before it begins to format. Since no options are used, the diskette will have the name TRSDOS, the password PASSWORD and all the other option defaults.

```
FORMAT 2 {DIR=Ø1,ALT=Ø5,SIZ=36Ø} <ENTER>
```

formats the diskette in Drive 2, puts the primary directory on cylinder 1, the alternate directory on cylinder 2 and sets the number of directory records to 36Ø.

WHEN TO FORMAT

To prepare a new disk

Before you can use a new diskette, you must format it (unless you use the BACKUP command with a floppy diskette). After formatting, record the disk name, date of creation and password in a safe place. This helps you estimate how long a disk has been in use, and prevents your forgetting the master password. (For this application, always use the FULL verify option.)

To erase all data from a disk

To "start over" with a disk, you can format it. This erases all old information on the disk and puts the system information back on it.

To lock out flawed areas

After prolonged use, flaws may develop on a diskette. If you reformat the disk, it locks out these flawed sectors while leaving the good sectors available for data storage. Use the FULL verify option for this application.

FORMS

```
FORMS {format options}
FORMS {switch options}
```

Sets up the printer parameters.

The {format options} are:

- **P=n** sets n as number of lines per page. n can be any number between Ø and 255. If omitted, it is 66.
- **L=n** sets n as the maximum number of lines to print on a page before issuing an automatic top of form. n can be Ø to 255 and, if omitted, L=6Ø. The number of lines must be less than or equal to the page length. If either page length or lines

is Ø, both must be Ø. If L=Ø, TRSDOS-16 doesn't issue an automatic top of form.

W=n sets n as the maximum number of characters to print on a line before issuing an automatic carriage return. n can be any number between Ø and 255. If omitted, W=132.
If W=Ø, TRSDOS-16 doesn't issue any automatic carriage returns.

C=h sets the output to h, a one-byte control code in hexadecimal, to the printer. It is sent on completion of FORMS command.

The default parameters are P=66, L=6Ø, W=132 and C=Ø. If you want to use the default parameters, you don't need to issue the FORMS command.

To determine the parameters to set for:

page size	multiply form length in inches by the number of lines per inch.
lines per page	determimes the number of blank lines at the bottom of every page. If page length equals lines, then every line on the page is printed. lines can't be greater than page length. width sets the maximum number of printable characters per line. If a line is greater than width, then TRSDOS-16 automatically breaks the line at the maximum length and continues printing at the next print line.
control codes	are required on some printers, e.g. to set up for double space character, etc. The TRSDOS-16 sends the specified code to the printer or print file during execution of the FORMS command.

The {switch options} are:

X sends all data to printer or printer file without any translation (transparent mode).

D ignores all printer output ("dummy" mode).

N returns to normal (nontransparent, non-dummy) mode. This is the default mode.

A outputs line feed after carriage return (auto line feed mode) even if transparent mode is in effect. Updates count by carriage returns, not by line feeds.

T	sends top of form character to printer.
Q	cancels auto line feed mode.
S	switches to serial Channel B printer driver. (You must do SETCOM before any printing can be done.)
R	returns to parallel printer driver.

See the PRCTRL Supervisor Call in the Technical Information Section for information on transparent, dummy modes, etc.

Examples

```
FORMS <ENTER>
```

resets all FORMS parameters to the default values.

```
FORMS P=51, L=46, W=92 <ENTER>
```

sets page length to 51, printed lines per page to 46 and characters per line to 92.

```
FORMS D <ENTER>
```

invokes the dummy mode. This means TRSDOS-16 will ignore all printer commands.

FREE

```
FREE drive {option}
```

Returns a list of the disk's free sectors.

drive is optional; if omitted, it defaults to the primary drive.

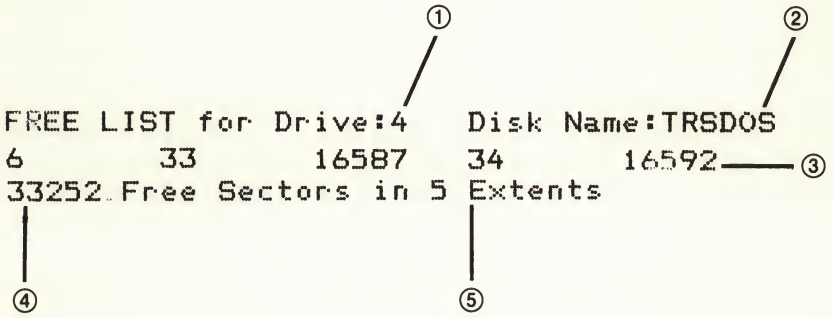
The option is:

PRT	prints the listing on the Printer. If omitted, TRSDOS-16 automatically displays it on the video display.

This information is useful to optimize file access time. If you use a disk extensively (files updated, killed, extended, etc.), the files often become fragmented. This means that the file may be put in different parts of the

disk's memory -- extents. When this happens, the access time is considerably increased because the disk read/write mechanism must move back and forth across the disk to read or write to a file.

FREE helps you determine the extent that your disk files are fragmented. Once you determine this and you decide that you'd like to re-organize a particular file to allow faster access, you can COPY or MOVE it to a "clean" diskette.



1 Drive Number
2 Disk Name
3 Number of FREE sectors in each extent
4 Total number of free sectors
5 Number of FREE extents (an extent is an area on the disk)

Figure 3. FREE List

Example

FREE <ENTER>

displays the amount of free space on the disk in the primary drive.

FREE {PRT} <ENTER>

lists the amount of free space for the primary drive to the printer. Because no drive specification is included in this example, you must use the braces, { }.

```
FREE 2 PRT <ENTER>
```

lists the free space for Drive 2 to the printer.

HELP

```
HELP command
```

Displays the syntax of a TRSDOS-16 command. command is optional; if you omit it or type an unrecognized command, TRSDOS-16 displays the TRSDOS-II and TRSDOS-16 commands and general subjects for which HELP is available.

Example

```
HELP MOVE <ENTER>
```

displays the syntax for the MOVE command.

```
HELP SYNTAX <ENTER>
```

returns an explanation of the format of the HELP messages.
The HELP command displays only the TRSDOS-II commands and syntaxes. This will be corrected in a future release of TRSDOS-16.

KILL

```
KILL filespec
```

Deletes filespec from the directory and frees the space allocated to it.

Before it deletes the file, TRSDOS-16 displays the complete filespec and prompts you with the options "Delete? (Y/N/Q)..", i.e, Yes, No, or Quit.

Example

KILL DATAFILE/OLD <ENTER>

deletes DATAFILE/OLD from the directory and frees all space allocated to it.

LIB

LIB

Displays a listing of all system commands.

Example

LIB <ENTER>

LIST

LIST filespec {options}

Lists the contents of filespec. This listing shows the hexadecimal contents and the ASCII characters corresponding to each value. For values outside the range of hexadecimal 2Ø to 7F, TRSDOS-16 displays a period.

The options are:

- **PRT** lists filespec to the printer. If omitted, the listing automatically goes to the screen.
- **SLOW** tells TRSDOS-16 to pause after each record. If omitted, the listing is continuous.
- **R=n** sets the starting record to n. The range for n is 1 to 65,535. If omitted, 1 is used. (See TECHNICAL INFORMATION for details.)
- **A** tells TRSDOS-16 to list only the ASCII characters.

Examples

```
LIST DATA/BAS <ENTER>
```

lists the contents of DATA/BAS.

```
LIST TEXTFILE/1 SLOW <ENTER>
```

lists the contents of TEXTFILE/1, pausing after each record.

```
LIST TEXTFILE/1 R=1ØØ, A <ENTER>
```

lists TEXTFILE/1 starting with the 1ØØth record in it. Only ASCII characters are displayed.

```
LIST PROGRAM/CMD PRT <ENTER>
```

lists PROGRAM/CMD to the printer.

LOAD

```
LOAD filespec
```

Loads a machine language program named filespec and then returns to the TRSDOS-16 mode.

Example

```
LOAD MARKET/OBJ <ENTER>
```

loads the machine language program file named MARKET/OBJ into memory.

MOUNT

```
MOUNT
```

Tells TRSDOS-16 that you have inserted different diskettes in the floppy disk drives.

Whenever you swap diskettes, you must tell TRSDOS-16 that you have done so -- both before removing the old diskettes and after inserting the new diskettes. (Be sure not to remove a diskette when a file is open.)

See the DISMOUNT system command for instructions on removing diskettes.

Example

```
MOUNT <ENTER>
```

informs TRSDOS-16 that you have inserted different diskettes in the floppy drives.

TRSDOS-16 will acknowledge the MOUNT by displaying:

```
INIT DONE
```

MOVE

MOVE source **TO** destination {options}

Copies single or multiple user files to the destination disk.

source can be a filespec, a wildcard (* or !), or simply a drive number. However, you cannot move password protected files.

When you specify only drive as the source, TRSDOS-16 moves all user files on the disk in that drive to the destination drive.

destination is the drive number of the disk where you want your file(s) moved. Your MOVEd files will retain the same name as the source filespec.

options are:

ABS instructs TRSDOS-16 to overwrite any existing files on the destination disk that have the same name.

PROMPT tells TRSDOS-16 to display each file before moving it and to give you a set of options for

that file. The PROMPT options are: Y/N/S/Q (Yes--Copy;No--Don't Copy;Stop prompts and proceed with all copies;Quit this command--no more copies.) If PROMPT is omitted, TRSDOS-16 moves all files that match the wildcard specification.

ALL tells TRSDOS-16 to move all user files. This parameter is required when you move all files (except the system files) on a disk.

MOVE is useful when you want to copy all of your TRSDOS-16 files from floppy diskette to hard disk, or vice versa. Because it moves only the user files (those files which you create), you need to use the COPY command to move your system files (your Radio Shack files, such as the Editor, or the Assembler).

For example, type:

```
MOVE Ø TO 4 {ALL} <ENTER>
```

to move all your user files from the diskette in Drive Ø to hard disk.

Then, use the COPY command to copy each of your system files to your hard disk.

Examples

```
MOVE DAT/FLE:1 TO 3 <ENTER>
```

moves the file DAT/FLE on the diskette in Drive 1 to the diskette in Drive 3, keeping the filename DAT/FLE.

```
MOVE */PAY TO 2 <ENTER>
```

copies all user files with the extension /PAY on the disk in the primary drive to the diskette in Drive 2.

```
MOVE ! TO 3 <ENTER>
```

moves all user files, with and without extensions, on the primary drive to the diskette in Drive 3.

MSG

```
MSG "message"
```

Prints message on the screen. You must enclose the message in quotes.

This command is especially useful in a DO-file. (See DO for more information.)

Example

```
MSG "THIS PROGRAM REQUIRES ONE DATA DISKETTE" <ENTER>
```

prints THIS PROGRAM REQUIRES ONE DATA DISKETTE on the screen.

PATCH

```
PATCH filespec {options}
```

Allows you to make minor corrections in any disk file, provided that:

1. You know the existing contents and location of the data you want to change.
2. You want to replace one string of code or data with another string of the same length.
3. The file is a fixed-length record (FLR) file.

filespec indicates the file you want to change. If it is a system file, no password is necessary. If it is a protected user file, you must include the password.

The options are:

A=aaaa indicates the starting address of the data to be changed. This is where the data resides in memory when the program is loaded. aaaa is a four-digit hexadecimal value without the X'' notation. (The A option will not work on 68ØØØ programs. Use the R and B options instead.)

F=findstring indicates the string that is currently in the patch area.

C=changestring indicates what data will replace findstring. changestring must contain the same number of bytes as findstring

R=record tells which record contains the data to be changed, and is a decimal number from 1 to 65536.

B=starting byte specifies the position of the first byte to be changed. It is a decimal number from 1 to 256.

You can use PATCH to make minor changes to your own machine-language programs; you won't have to change the source code, reassemble it, and recreate the file. You can also use it to make minor replacement changes in data files.

PATCH also allows you to implement any modification to TRSDOS-16 that may be supplied by Radio Shack. This way, you do not have to wait for a later release of the operating system.

NOTE: If you press <BREAK> during a PATCH operation, before any changes have been made in the file, PATCH will close the file and return to TRSDOS-16. The file will be unchanged. Once the PATCH process begins, <BREAK> will have no effect.

USING PATCH ON A TRSDOS-16 SYSTEM FILE

When Radio Shack releases a modification to TRSDOS-16, you will receive a printout of the exact PATCH commands that you must enter to perform the change.

To implement such a change, follow these steps:

1. Make a backup copy of the diskette to be patched.
2. Insert the TRSDOS-16 diskette to be changed into one of the drives. (Make sure the diskette is "non-write-protected.)
3. In the TRSDOS-16 Ready mode, type in the specified PATCH command.
4. After the PATCH is complete, test the diskette in Drive Ø to see that it is operating as a TRSDOS-16 system diskette. You will have to reset the Computer.

USING PATCH ON A Z-8Ø PROGRAM FILE

In this context, "program files" refers strictly to those files stored with the "P" attribute. Use the DIR command to find out the attributes of a file. BASIC programs have the "D", not the "P", attribute. (See instrucitons for changing data files.) Program files are created with DUMP.

If you want to change four bytes in a machine-language program file, you must first determine where the four-byte sequence resides in RAM when the program is loaded. Next make sure that your replacement string is the same length as that of the original string. For example, you might write down the information as follows:

Files to be changed: VDREAD
Start address: H'528Ø'
Sequence of code to be changed: H'CD2C25E5'
Replacement code: H'ØØØØØØC9'

Then you could use the following command:

```
PATCH VDREAD A=528Ø,F=CD2C25E5,C=ØØØØØØC9
```

USING PATCH ON 68ØØØ PROGRAM FILES AND DATA FILES (INCLUDING BASIC AND COBOL PROGRAMS)

If you want to patch a 68ØØØ program file or if you have a file stored with the "D" attribute, you must specify the patch area in terms of the logical record which contains the data, and the starting byte of the data record. (The TRSDOS-16 LIST command gives this information.)

For example, if you want to change a 12-byte sequence in a file called NAMEFILE, use the LIST command to find the location of the sequence. If it is in Record 128, starting at byte 14, write down the information like this:

File to be change: NAMEFILE
Record number: 128
Starting byte: 14
Sequence of text to be changed: "JOHN'S DINER"
Replacement text: "JACK'S PLACE"

Then use the following command to patch a data file:

```
PATCH NAMEFILE R=128,B=14,F="JOHN'S DINER",C="JACK'S PLACE"
```

For data files, notice that either string can include a single-quote, as long as the string is surrounded by double-quotes. If you want to include a double-quote inside either string, you would have to enclose that string in single-quotes.

Use this command to patch a 68ØØØ program file:

```
PATCH BUDGET/PRO R=24,B=8,F=FDCBØØ,C=C3812Ø
```

NOTE: The string you change must be entirely contained inside the specified record. If it spans two records, you will have to perform the patch operation twice, once for each record.

ERROR CONDITIONS

If a TRSDOS-16 error occurs during the patch operation, you will receive the appropriate error message, and the patch will be terminated without changing the file.

PATCH can also produce the following messages:

PATCH STRING TOO LONG -- ABORT This occurs when you patch a data file and the patch string spans two records. You need to perform the patch in two steps, one for each record that contains a part of the string to be changed.

FILE CONTAINS VARIABLE-LENGTH RECORDS -- ABORT You can only patch fixed length record files.

STRING NOT FOUND The findstring was not found at the patch location you specified. Before patching a file, you must know the exact patch location and the existing contents of that location.

ADDRESS OUT OF PROGRAM-LOAD RANGE -- ABORT This occurs when you attempt to patch a program file and some or all of the patch string is outside the RAM area where the program resides when it is loaded. Check the A=aaaa parameter. Also be sure that the findstring and changestring are not longer than you intend them to be.

PAUSE

```
PAUSE prompt message
```

Prints prompt message and then waits for the operator to press <ENTER>. (The prompt message is optional.)

Like MSG, this command is especially useful in a DO-file. (See DO for more information.)

Example

```
PAUSE INSERT DISKETTE "SALESRPT" INTO DRIVE 2 <ENTER>
```

prints PAUSE INSERT DISKETTE "SALESRPT" INTO DRIVE 2, Press any key to continue, then pauses until the operator presses a key.

PRINT

```
PRINT filespec {options}
```

Prints out contents of filespec, omitting the record numbers and hexadecimal codes (LIST does that). filespec must be a text file.

The options are:

A causes TRSDOS-16 to treat the first byte in each record as a FORMS control character. The meaning of the character in the first byte is:

- "1" do a form feed before printing (top of form).
- "b" do a carriage return before printing (single space)
- "Ø" perform two carriage returns before printing (double space).
- "+" perform a carriage return without a line feed advance. If current printer can do a carriage return without a line feed, this control code causes the characters following to be over printed on the current line.

V causes TRSDOS-16 to output the filespec to the video display, as well as to the printer.

NOTE: Use the A option only when filespec contains the control codes listed.

Example

```
PRINT PROGRAM/TXT V <ENTER>
```

outputs PROGRAM/TXT to the video display, as well as to the printer.

PROT

```
PROT drive {options}
```

Changes password protection of the disk in the drive on a large scale.

The options can be any of the following:

OLD=password specifies the disk's current master password. You cannot use any of the remaining options without specifying this.

NEW=password assigns the TRSDOS-16 disk the new master password.

LOCK tells TRSDOS-16 to assign all user files the latest master password. Both update and access words are then set to this password. (See ATTRIB for information on access and update passwords.)

UNLOCK tells TRSDOS-16 to remove passwords from all user files.

A disk's master password is initially assigned during the format or backup process. The Model 16 systems disk is supplied with the master password PASSWORD.

Example

```
PROT 1 OLD=PASSWORD, NEW=H2Ø <ENTER>
```

changes the master password of the diskette in Drive 1 from PASSWORD to H2O.

```
PROT Ø OLD=H2O, UNLOCK <ENTER>
```

removes passwords from every user file on the diskette in Drive Ø.

```
PROT Ø OLD=H2O, NEW=ELEPHANT, LOCK <ENTER>
```

changes the master password from H2O to ELEPHANT and assigns the new password to every user file.

PURGE

```
PURGE drive {options}
```

Quickly deletes files from the disk in the specified drive number.

drive is optional. If omitted, the primary drive is used.

The options are:

SYS	System files (program and data)
PROG	User machine-language program files.
DATA	User data files.
ALL	All files, user and system.

If the options are omitted, TRSDOS-16 only allows you to PURGE data files.

Once you enter the PURGE command, TRSDOS-16 prompts you for the disk's password. Type in up to eight characters and press <ENTER>. (All disks distributed by Radio Shack use the password PASSWORD.)

The system then displays the file names, one at a time, prompting you to kill one file at a time, keep the file, or quit the operation.

Example

```
PURGE 1 <ENTER>
```

allows you to delete data files from Drive 1.

```
PURGE 2 {PROG} <ENTER>
```

allows you to delete user machine-language program files from the diskette in Drive 2.

RENAME

RENAME filespec1 TO filespec2

Renames filespec1 to filespec2.

RENAME alters only the filename and extension, not the contents or the physical positon of the file on the disk. The file's password also remains the same. (See ATTRIB to change the password.)

Example

```
RENAME DATA/FLE TO DATFILØ1 <ENTER>
```

renames DATA/FLE to DATFILØ1.

RESET

RESET

Resets/restarts TRSDOS-16.

This command is almost the same as using the RESET switch. The RESET command closes all open files if you are at the TRSDOS-16 Ready prompt.

Example

```
RESET <ENTER>
```

RESTORE

RESTORE source **TO** destination {options}

Recovers any files stored on floppy diskettes that were saved with the SAVE command. Because SAVE stores files in a special format, RESTORE is the only way to return these files to the hard disk drive.

source specifies a floppy diskette and is one of the following:

- drive specifies a drive number between Ø-3.
- filespec:drive where filespec is a TRSDOS file specification and drive specifies a drive number between Ø-3.
- wildcard:drive where wildcard is a standard TRSDOS-16 wildcard and drive specifies a drive number between Ø and 3.

destination is optional, but may be one of the following:

- drive specifies a drive number between Ø-7, but may not be the same as source.
- filespec:drive if {options} is {IND}. If {DIR} is specified in source, destination cannot be specified.

If omitted, destination is first available hard disk drive.

The options and their meanings are:

- **ABS** tells TRSDOS-16 to retrieve the specified file(s). If used, TRSDOS-16 overwrites the already existing file with the same name.
- **DIR** If VOLUME Ø is in source drive, TRSDOS-16 will display the DATASET directory and identifier; if VOLUME Ø is not a source drive, TRSDOS-16 will display only the DATASET identifier.
- **IND** (indirect) tells TRSDOS-16 to use the contents of the destination file as a list of destination filespecs that meet the requirements stated above.
- **KILL** deletes the specified destination file before it is opened for RESTOREing.
- **PROMPT** asks for verification of each file for RESTOREing. Press <Y> (yes), <N> (no), <Q> (quit

restoring), or <S> (stop prompt).

PRT can only be used with the DIR option. Prints the DIRectory listing on the line printer

SYS specifies that all System files will be retrieved. This includes System (language) and Applications programs. If used with **DIR, SYS** will list the directory of System files.

ALL tells TRSDOS-16 to restore all files. (ALL won't transfer system files, use SYS.) If you use drive as source, you must use ALL.

RESTORE reads information from a DATASET created by SAVE. If a VOLUME of this DATASET is entered out of sequence, TRSDOS-16 informs you of the mistake. The System also informs you if a VOLUME from a different DATASET is accidentally entered during a RESTORE. (See SAVE for explanation of DATASET and VOLUME.)

When you're RESTOREing files in a DATASET, TRSDOS-16 prompts you with:

Mount NEXT Diskette in Drive n -- Press ANY Key to continue.

which instructs you to enter the next VOLUME of the DATASET.

Example

RESTORE Ø {ALL} <ENTER>

Restores all SAVEd user files on Drive Ø to the first available hard disk drive.

RESTORE !:2 TO 4 <ENTER>

recovers files from the floppy diskette in Drive 2 and puts them on hard disk Drive 4.

RESTORE 1 PROGRAMS {IND} <ENTER>

where PROGRAMS is an INDirect file containing the files:

MAILIST/PRG:4
MAILDAT/TXT:4
CHANGES/TXT:4

recovers the files from the floppy diskette in Drive 1, to the filespescs defined in PROGRAMS on Hard Disk Drive 4. Note that "TO" is optional.

```
RESTORE */SRC:Ø 4 <ENTER>
```

Restores all user files SAVEd with the extension /SRC on Drive Ø to Hard Disk Drive 4 using the same file names.

SAVE

SAVE source TO destination {options}

Creates a serial file-by-file backup of source onto destination. Normally, you'll want to use the SAVE command to backup your hard disk files onto floppy diskette. This backup will be a compact form which consumes approximately half the space that it would be on a standard floppy diskette.

This gives you a floppy diskette copy of your files that can easily be carried to another hard disk system. It can also be used to create a "safe" copy of important files.

The only way to retrieve a file in this "compact" format is with the RESTORE command. Any attempt to access a SAVEd diskette using a TRSDOS-16 command will cause the System to appear "locked-up" for a short period of time while TRSDOS-16 attempts to read the SAVEd diskette.

source can be one of the following:

- drive specifies a drive number between Ø-7, but may not be the same as destination (ALL must be specified).
- filespec:drive if {options} is {IND}.
- wildcard:drive is a TRSDOS-16 wildcard and includes a drive number (Ø-7).

destination specifies a floppy diskette and is one of the following:

- drive specifies a drive number between Ø-3.

options and their meanings are:

ABS tells SAVE not to prompt for destination diskette status. It formats the destination diskette if it isn't already in SAVE format.

DC value date compares the creation date of each specified source file against the date entered and SAVEs the file if all other criteria are met.

DM value date uses the last modification date in the manner specified above.

IND (indirect) tells SAVE to use the contents of the source file as a list of source filespecs that meet the requirements stated above.

PROMPT asks for a file verification before SAVEing. You may respond with <Y> (yes), <N> (no), Q (quit) or <S> (stop prompting and continue).

ALL tells TRSDOS-16 to save all files. (ALL won't transfer system files, use SYS.) If you use drive as source, you must use ALL.

SYS allows you to SAVE language and application programs.

Note: value is <, >, or = where < (less than) and > (greater than) mean less than or equal to and greater than or equal to.
date must be in the form: MMDDYY

When the ABS option is used with SAVE, TRSDOS-16 will write over any diskette. If ABS is not used, you will be prompted first.

SAVEing Multiple Diskettes

Since the hard disk drive is a larger storage system than the floppy diskette, it is sometimes necessary for SAVE to store information on more than one diskette. In these cases, SAVE prompts for the insertion of a new diskette.

There are two terms relative to SAVE which you need to be familiar with:

DATASET A set of one or more diskettes created by SAVE.

VOLUME An individual diskette that is a member of a DATASET.

TRSDOS-16 numbers the VOLUMEs sequentially from Ø. Each DATASET contains a unique identifier so each SAVE VOLUME is identified by its serial position in a specific DATASET.

This prevents the accidental mixing of DATASETS within each other.

If a SAVEd file requires more than one floppy diskette, the DATASET identifier enables you to keep trǻck of diskettes in the same VOLUME. For instance, DATASET identifier 84 4E 56 may include VOLUMEs Ø, 1, and 2.

When you are SAVEing files that require more than one Volume, TRSDOS-II prompts with:

```
Insert NEXT Blank Diskette on Drive n --
Press ANY Key to Continue.
```

When you do this, TRSDOS-16 then prompts with:

```
The Diskette Presently on Drive n
will be referred to as "VOLUME 1"
```

When all files have been SAVEd, TRSDOS-16 then prompts:

```
Insert "VOLUME Ø" on Drive 1 --
Press ANY Key to Continue
```

When you re-insert VOLUME Ø, TRSDOS-16 then writes it housekeeping information to this diskette. This allows it to record the number of volumes in the DATASET, etc. for use when it RESTOREs the SAVEd files.

Examples

There are a variety of ways to use SAVE. The simplest of these is:

```
SAVE !:4 TO 2 <ENTER>
```

This simply copies all the files on hard disk Drive 4 in a compact form onto the diskette in Drive 2.

WILDCARDING

Wildcards also offer a simplified method of saving files (these can be several files, or an entire disk). For example:

```
SAVE */CBL:4 TO Ø <ENTER>
```

SAVEs all files with the extension /CBL from Drive 4 to the diskette in Drive Ø.

USING THE INDIRECT OPTION

The INDirect option allows you to save groups of files by creating an INDirect file (a file consisting of one or more filespecs -- similar to a DO-file). The only way to do this is to create a BUILD file under the TRSDOS-II operating system. (For complete details on BUILD, see your Model II Owner's manual.)

Reset your computer to start-up under TRSDOS-II and when TRSDOS-II Ready is displayed, type:

```
BUILD PROGRAMS <ENTER>
```

TRSDOS-II then will prompt you to enter the command line. To do so, type in the names of the files you wish to store. For example, type:

```
ORDERS:5 <ENTER>
REPORTS/*:6 <ENTER>
```

and press <BREAK> to return to TRSDOS-II Ready.

You are now ready to SAVE your INDirect file from hard disk to the specially formatted floppy diskette. Type:

```
SAVE PROGRAMS:4 TO Ø {IND} <ENTER>
```

Both ORDERS and REPORTS are now found in the file named PROGRAMS on the floppy diskette in Drive Ø.

NOTE: Because the INDirect option allows you to SAVE multiple files from more than one hard disk, there is a chance that you could SAVE more than one file with the same name. The SAVE and RESTORE DIRectory does not specify drive numbers for files, therefore you could possibly some of the duplicate filenames.

For example, if you created an INDirect file consisting of these files:

```
*/FOR:4
*/CBL:4
*/FOR:5
```

there is the chance that there are duplicate filenames on drives 4 and 5. Therefore, before using the INDirect option, we suggest that you examine all the files to be SAVEd. If there are duplicate names, RENAME those files before SAVEing.

USING THE DC AND DM OPTION

Another way to SAVE files is to do so in respect to their creation or modification date. For example, if your directory showed these creation and update dates for your files:

Filename	Created	Updated
MENU/PRG	6/1/81	9/2/81
PRGONE/PRG	6/1/81	8/16/81
PRGTWO/PRG	6/1/81	7/3Ø/81
PRGTHR/PRG	6/1/81	6/16/81
PAYROLL/DAT	9/15/81	1Ø/15/81
CHECKS/DAT	9/15/81	1Ø/15/81
TEST/PRG	1Ø/29/81	1Ø/29/81

```
SAVE */PRG:5 TO Ø.
```

The most efficient way to SAVE these files would be by comparing the file creation date to a specified date. For example, all of the first four files were created on June 1, 1981 (6/1/81). Therefore, type:

```
SAVE */*:5 TO Ø {DC=Ø6Ø181} <ENTER>
```

and the first four files would be SAVEd to the floppy diskette in Drive Ø.

In the same sense, the first four files were modified (updated) on or before September 2, 1981 (9/2/81). Therefore, type:

```
SAVE */PRG:5 TO Ø {DM<Ø91581} <ENTER>
```

and all files modified before the specified date would be SAVEd.

SETCOM

```
SETCOM {options}
```

Sets up the A or B channels (on the back panel) for communicating with a remote device, via a modem or hardwire connection.

(If you are not a machine language programmer and want to communicate with a remote device, you need to buy a communications program. The manual that comes with it will explain how to use it. See your Radio Shack store for information.)

SETCOM without any options tells TRSDOS-16 to display the status of both serial channels.

The options are:

A=OFF turns off the A channel's RS-232 Communication settings.

B=OFF turns off the B channel's RS-232 Communication settings.

A=(baud rate,word length,parity,stop bits)
sets the A Channel for RS-232 communication.

B=(baud rate,word length,parity,stop bits)
sets the B Channel for RS-232 communication.

The RS-232 settings can be the following:

baud rate	11Ø, 15Ø 3ØØ, 6ØØ, 12ØØ, 24ØØ, 48ØØ, 96ØØ. If not specified, 3ØØ is used. (Some programs will not run correctly at speeds higher than 24ØØ baud.)
word length	5, 6, 7, 8. If not specified, 7 is used.
parity	E for even, O for Odd, N for none. If not specified, even is used.
stop bits	1, 2. If not specified, 1 is used.

Every option but the last must be followed by a comma. The options are positional; e.g., the third item in an option list must always specify parity. To use a default value, omit the option and insert only the comma.

To change the settings on a currently active channel, first turn the channel OFF. If the channel is already off when you try to turn if off, you'll get an error message.

Before executing this command, connect the remote device to the A or B channel.

Then, after executing it, you can begin sending and receiving data, using one of these TRSDOS-16 Supervisor Calls. (See the Technical Information Section for details.)

ARCV	Channel A receive
ATX	Channel A transmit
BRCV	Channel B receive
BTX	Channel B transmit
ACTL	Channel A control
BCTL	Channel B control

These system routines are only available when the respective channel has been initialized. See Technical Information for details.

Example

```
SETCOM A=( ) <ENTER>
```

sets up channel A for serial communicaitons, using all the default parameters. System function calls 96 and 97 are available for serial I/O. The status of channel B is unchanged.

```
SETCOM B=(6ØØ, 8,  , 2), A=OFF <ENTER>
```

sets up channel B:

baud rate	6ØØ
word length	8 bits
parity	Even (default)
stop bits	2

and turns channel A OFF.

```
SETCOM A=(12ØØ, 8, Ø,), B=( , , , 2) <ENTER>
```

sets up channels A and B.

	Channel A	Channel B
baud rate	12ØØ	3ØØ (default)
word length	8	7 (default)
parity	Odd	Even (default)
stop bits	1(default)	2

```
SETCOM <ENTER>
```

displays the status of both channels.

```
SETCOM A=OFF, A=( ) <ENTER>
```

resets channel A to default parameters.

SIZE

```
SIZE
```

Returns the amount of user memory currently available.

Example

```
SIZE <ENTER>
```

SPOOL

```
SPOOL {options}
```

Captures printer output or prints a spool file. SPOOL increases the efficiency of the system by allowing you to use the system while a print operation is in progress.

The {options} control the spool function. If omitted, the SPOOL status is displayed.

The options are:

ON activates the spooler. You must set this switch

You may not execute the SPOOL command and a DO file at the same time. The first one executed will be given priority over the second.

before you can use the other switches.

OFF turns off the spooler and closes the capture- and print-files.

N,F=_filespec_ creates a capture file named _filespec_

P,F=_filespec_ begins background-printing. _filespec_ is the file to be printed.

K keeps the file after printing it. If omitted, deletes the file after printing it. (TRSDOS-16 won't delete a print-file if the file is closed by a SPOOL S or if a disk error occurs in the print file.)

C=_n_ specifies the number of copies you want. If omitted, one copy is made. _n_ can be any number from 1 to 255.

L=_line_ specifies the line number where printing starts. A line is a sequence of characters terminated by a carriage return. If omitted, printing starts at line one. line may be any number from 1 to 65535.

H halts background-printing but saves the current position for later resumption (R switch).

R,L=_line_ resumes background-printing after a halt (H switch), or displays the current line number if the spooler has not been halted. If L=_line_ is used, printing resumes at the specified line. If omitted, printing resumes at the point where it was stopped.

S stops printing. It closes but doesn't kill the print-file and leaves the capture-file open.

The TRSDOS-16 spooler performs two functions which you can use simultaneously or one at a time:

1. It saves or "captures" the data that normally goes to the printer. The spooler then can either throw away this captured data or save it in a capture-file for later use.

2. It prints data from a disk file while other operations are in progress. That is, you can use the system -- everything except the printer -- while printing the file. While the spool-file is printing, your system captures the real-time printer output for later use.

Example 1

CAPTURE-FILE
In this example, you can run a program that outputs to the printer. Instead of waiting to use your system until the printing is complete, you can capture the program in a disk file to print out later.

To do this, call the capture-file SPOOL1 and type:

```
SPOOL ON <ENTER>
SPOOL N,F=SPOOL1 <ENTER>
```

This saves all printer output in SPOOL1. To stop capturing the printer output in SPOOL1, type:

```
SPOOL OFF <ENTER>
```

Now SPOOL1 is a text file which you can LIST or PRINT in the normal means, but at your convenience.

Example 2

BACKGROUND PRINTING
Here you can print to a file created by the spooler while you simultaneously use the system. Using the SPOOL1 file from the first example, type:

```
SPOOL ON <ENTER>
SPOOL P,F=SPOOL1 <ENTER>
```

TRSDOS-16 begins printing the file as a "background task", i.e., printing takes place only when the system isn't busy with some higher priority operation such as interpreting and executing your keyboard commands. Because this example doesn't include the K or C=copies option, TRSDOS-16 deletes SPOOL1 after it prints it and prints only one copy.

Type:

```
SPOOL OFF <ENTER>
```

after completing the print-file since the spooler doesn't turn itself off.

Example 3

SIMULTANEOUS CAPTURE-FILE AND BACKGROUND PRINTING

To save real-time printer output at the same time as the spooler prints a file, you can use this example.

First you need one capture-file (SPOOL1) and one print-file (SPOOL2). To turn the spooler on and begin capturing printer output in SPOOL1, type:

```
SPOOL ON <ENTER>
SPOOL N,F=SPOOL1 <ENTER>
```

You can now use the computer normally until you're ready to print out SPOOL1. To do so, type:

```
SPOOL  N,F=SPOOL2 <ENTER>
```

This closes SPOOL1 and makes SPOOL2 the new capture-file. To begin printing SPOOL1, type:

```
SPOOL  P,F=SPOOL1 <ENTER>
```

which prints out SPOOL1 and saves any real-time printing in SPOOL2.

If you want to halt the print-file operaton, type:

```
SPOOL H <ENTER>
```

This doesn't affect the capture-file operation. To resume printing, type:

```
SPOOL R <ENTER>
```

T

```
T
```

Moves the printer to the next page (top of form). This command is like FORMS with the T option.

If you are currently using spooler and it is capturing, T sends Top-Of-Forms character X'0C' to the spooler capture file.

Example

T <ENTER>

starts a new page after printing a file.

TERMINAL

TERMINAL

allows communication between the Model 16 (or the Enhanced Model II) and another computer running a host program. TERMINAL can only be used for transmission and reception of ASCII text rather than machine-language object code.

Input/Output is through Serial Channel A. In most applications, hookup is through telephone lines via a modem.

TERMINAL has three modes of operation, all described in detail in MODES OF OPERATION:

Menu allows you to select or change options, and even execute TRSDOS-16 system commands.

Interactive terminal transmits your keyboard input and displays incoming data.

Transmit from RAM for high-speed transfer of prepared data. Incoming data is displayed on the screen.

SETTING UP

For communications through telephone lines, you need a modem such as the Telephone Interface II, (26-1171), Modem I (26-1172), or Modem II (26-1173), and the RS-232 Cable, 26-44Ø3.

1. Set up the modem according to its instructions, and connect it to Serial Channel A on the back panel of the computer display console. If Serial Channel B is not connected to another device, install the serial terminator on that channel.

2. Set the modem to originate or answer mode -- whichever is the opposite of the host program with which you will communicate. Set it to full or half duplex, again depending on the requirements of the host program.

3. Turn on the modem and the Model 16/Enhanced Model II computer system.

4. Find out what RS-232C parameters are required by the host program you plan to use:
   Baud Rate
   Word length
   Parity
   Number of stop bits
   Initialize Serial Channel A accordingly (see RUNNING TERMINAL).

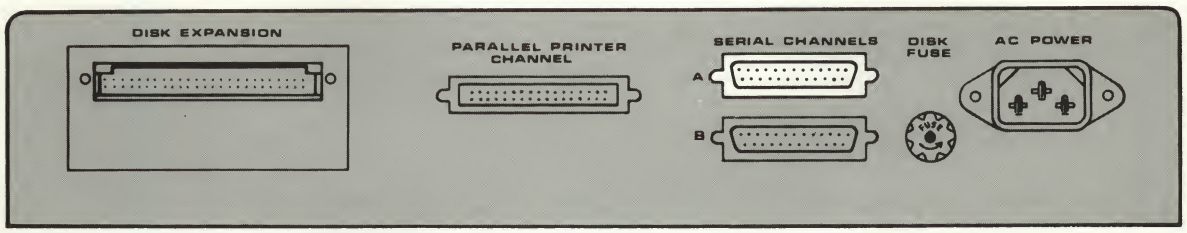


Figure 4. Connect RS-232-C Cable from Modem (or other Serial I/O device) to Serial Channel A on the back panel of the Model 16.

Note: In the examples illustrating sample uses of TERMINAL, underlining indicates what you should see on your display. The information following the underlined text is what you type.

RUNNING TERMINAL

1. From TRSDOS-16 Ready, you can start TERMINAL by typing:

   TERMINAL <ENTER>

   The program starts up in the Menu mode with the prompt:

   -- Enter Menu Selection ..

   Initialize Serial Channel A according to the

requirements (Baud Rate, Word Length, Parity, and Number of Stop Bits) of the host program you will communicate with. Type:

S <ENTER>

When the program prompts you to type in a TRSDOS-16 command, type in the SETCOM command just as you would in the TRSDOS-16 Ready mode. For example:

SETCOM A=(3ØØ,7,N,2) <ENTER>

enables Serial Channel A with 3ØØ baud, seven-bit words, no parity and two stop bits. After executing the command, control will return to TERMINAL's Menu mode.

3. If you plan to use the printer option (P) of TERMINAL (described later), initialize the printer now with the FORMS command. Type:

   S <ENTER>

   and enter the appropriate FORMS command at the prompt.

4. To select another menu command, type in the letter specified in the Menu. (See the Menu Commands Section for a list of the available commands.) To redisplay the entire Menu, type:

   M <ENTER>

MODES OF OPERATION

Menu Mode
is an off-line mode, i.e., you cannot transmit characters to the host program, and if characters are sent to you, they will be lost. This is the only mode where you can select Menu options. You can also enter the Transmit from RAM or Interactive Terminal mode from the Menu mode.

Interactive Terminal Mode
sends the characters you type to the host program and displays incoming characters as they are received. If the host program echoes your transmissions, they also will appear on the display; if not, you can select the echo option to instruct TERMINAL to display your keyboard input.

You can save incoming characters in the RAM buffer (R option) and output them to the printer (P option).

If transmission errors occur, TERMINAL displays a descriptive error message and waits for the error condition to be corrected. When it is, normal I/O resumes in the Interactive Terminal mode.

There are three ways to enter this mode:

1. With the T command from the Menu mode.
2. With the O command -- upon completion of an auto sign-on.
3. After transmission from the RAM buffer.

To return to the Menu mode, press <BREAK>.

NOTE: Certain hosts will prompt you to use a break character or sequence to initialize transmissions. Since the <BREAK> key sends the program from the Terminal Mode to the Menu Mode, the Model 16 uses <ESC> for this break character. You can also set your own break character or sequence with the B command.

Transmit from RAM (and Auto Sign-On)
sends the contents of the RAM buffer to the host program, and passes control to the Interactive mode. Auto sign-on (O command) works in the same way as transmit from RAM. (The following applies to both operations.)

Load the RAM buffer with prepared text from a disk file with the G option. (If you are using auto sign-on, your auto sign on message is sent.) You can send the data in the RAM buffer one line at a time when the host program prompts you that it is ready (W option), or you can send it in a continuous stream.

During the transmission, your computer displays incoming text on the screen. If the host program echoes your transmissions, you can verify that the data was accurately sent.

During the transmissions, adjust the delay between characters by repeatedly pressing the <up arrow> (faster) and <down arrow> (slower) keys. If echoed data appears garbled, slow down the transmissions. If not, you might want to speed it up.

If TERMINAL receives a break character or sequence in this mode, it pauses until it receives the next character. If an H'13" is received, TERMINAL will pause until an H'11' is received. (By convention, H'13' is called the DC3 signal and means pause; H'11' is called the DC1 signal and means resume).

Use the X command to enter this mode.

To exit this mode and return to the Menu mode, press <BREAK>.

TERMINAL COMMANDS AND OPTIONS

A Build Auto Sign-On Message -- Allows you to prepare an automatic sign-on to be sent to the host with the O option. The message should contain the responses you use to answer the standard sign-on questions provided when you first call a host.

The message can be up to 6Ø keyboard characters, including control characters. All control characters will be displayed as +, but the true control code will actually be sent. (When you display a message, no control codes will be shown.) To imbed a carriage return (H'ØD') in the message, press <down arrow>.

For example, if the host requires responses to these prompts during sign-on:

User ID?
User Password?
Program Name?

instead of typing the information each time you call the host, you can store the responses in an auto sign-on buffer. To store the following information in the buffer:

STL-314 <H'ØD'>
SHOWME <H'ØD>
MENU <H'ØD'>

Type:

--Enter Menu Selection.. A <ENTER>

```
The Current Auto Sign-On is

Change? (Y/N) Y <ENTER>
Enter Auto Sign-On Message (1-6Ø)
STL-314 <down arrow> SHOWME <down arrow> MENU <ENTER>
The Current Auto Sign-On is
     STL-314
     SHOWME
     MENU
-- Enter Menu Selection ..
```

The blank line above Change? (Y/N) Y <ENTER> indicates that the original auto sign-on was blank or contained non-display characters.

B Set/Change Break Character or Sequence -- Allows you to select the incoming code that will be interpreted as a "break" and also lets you define a key to send the same break character or sequence.

You can use any code from Ø to 255 as the break character; you can specify any duration from 1 to 451 milliseconds for the break sequence (this is determined by the host program). For the user-defined break key, you can use any key except <BREAK> or <CTRL> <C>.

The following example shows how to set up H'ØA' as the break character, and <CTRL> <D> as the break key:

```
--Enter Menu Selection B <ENTER>
Break Key is Now 1BHex
Change? (Y/N) Y <ENTER>
Enter New Key (1) <CTRL> <D> <ENTER>
Break Key is Now Ø4 Hex
Type of Break is Now CHR
Change? (Y/N) N <ENTER>
Break Char is Now Ø3 Hex
Enter new CHAR Value in Hex (2) ØA <ENTER>
Break Char is Now ØA Hex
```

C Copy RAM Buffer to Disk -- Creates a disk file copy of the text in the RAM buffer. The new file will have a record length of one.

Use this command to save data received into the RAM buffer in the Interactive Terminal mode. To minimize hookup time, do this after ending the connection to the host program. Or

if the RAM buffer is full, save it in a disk file, then reset it and reopen it for more data.

For example, to save a report you have just received in the Interactive Terminal mode as a disk file named REPORT, type:

```
-- Enter Menu Option.. C <ENTER>
Enter Filespec (1-34)
REPORT <ENTER>
```

The new file will be created (if REPORT already exists, it will be overwritten with the new data), and the RAM buffer contents and status will be unchanged.

To stop the copy process, press <BREAK>. The disk file will be closed and you will be returned to the menu.

D Display RAM Buffer -- displays the contents of the RAM buffer. To pause the display, press <HOLD>. To continue, press <HOLD> again. If the printer option is on when you issue this command, the text will also be output to the printer. To enter the command, type:

```
--Enter Menu Selection.. D <ENTER>
```

To stop the display function, press <BREAK>. You will be returned to the menu.

E Toggle Self Echo Option -- Allows you to display the characters you send via the TERMINAL.

Some hosts echo the text you send. As the host receives each character, it sends it right back to you and what you sent is displayed on the screen. When communicating with this type of host, set your modem to full duplex.

If the host does not echo your text, what you send will not be displayed unless you use the self-echo option. With such hosts, set your mode to half duplex.

To toggle the echo option, simply type E <ENTER>. The new state of the option (ON or OFF) will be displayed and the menu prompt will return.

F Set/Change <F1> and <F2> Keys -- Allows you to program <F1> and <F2> to output any code from Ø-255. This is useful if you use a particular code frequently.

For example, if the host recognizes H'13' (<CTRL> <S>) as pause control and H'11' (<CTRL> <Q>) as resume control, you may want to change these to <F1> and <F2> for convenience sake. To do this, type:

```
-- Enter Menu Selection.. F <ENTER>
F1 Key Will Send a Ø1 Hex Code
Change? (Y/N).. Y <ENTER>
Enter New Char Value in Hex (2) 11 <ENTER>
F1 Key Will Send a 11 Hex Code
F2 Key Will Send a Ø2 Hex Code
Change? (Y/N).. Y <ENTER>
Enter New Char Value in Hex (2).. 13 <ENTER>
F2 Key Will Send a Hex Code
-- Enter Menu Selection ..
```

Now when you type <F1> in the Interactive Terminal Mode, TERMINAL will transmit the resume control H'11'; for <F2>, the pause control H'13'.

G Get Disk File into RAM Buffer -- lets you load text stored in a disk file into the RAM buffer and then send it to the host via the X command (transmit from RAM). The previous contents of the RAM buffer are lost.

The disk file can contain fixed- or variable-length records of any length. However, only ASCII files should be loaded and sent. You can send any programs as long as you saved them in ASCII format.

For example, to send a document stored in the file DOCUMENT/TXT type:

```
--Enter Menu Selection.. G <ENTER>
Enter Filespec (1-34)
DOCUMENT/TXT <ENTER>
```

TERMINAL will load the file and return to the Menu. The RAM buffer will be closed.

If the host program is ready to accept data, you can now send it with the X command. After transmission is complete, TERMINAL will go to the Interactive Terminal mode.

L Toggle Line Feed Option -- tells TERMINAL how to handle an incoming line H'ØA'. When the option is on, all line feeds are ignored; when off, they are not ignored.

This is useful if the host always sends a line feed after a carriage return. Since the TRSDOS-16 display and printer drivers automatically perform a line feed after a carriage return is sent, the incoming line feed is redundant. Therefore, the line feed option should normally be on.

To toggle the line feed option, simply type L <ENTER>. The new state of the option (ON or OFF) will be displayed and the Menu prompt will return.

M Display Menu -- Clears the display and redisplays the Menu. Use this command when you have entered so many commands that all the Menu commands are not visible.

O Enter Terminal Mode with Auto Sign-On -- Starts transmission of the current auto sign-on message. After it sends the message, TERMINAL enters the Interactive Terminal mode.

To stop transmitting the auto sign-on, press <BREAK>. This returns control to the menu.

For details, see "Transmitting from RAM."

Note: Most host programs cannot receive anything until they send the first prompting message. Because of this, you should:

1. When connection is first made, go to the Interactive Terminal mode (T option) and wait for the host to send its first prompt character.
2. Press <BREAK> to return to the menu.
3. Start the auto sign-on (O option).

P Toggle Printer Option -- Turns the printer option ON and OFF. When ON, incoming text is copied to the printer as it is received and displayed. Initialize the printer with the FORMS command before you try to use it. When you use the D command while the P option is on, the RAM buffer text is copied to the printer.

TERMINAL uses a circular buffer for efficient output to the printer. If characters come in too fast, they will not be printed. They will be displayed, though, and saved in RAM if the buffer is open. (Check your printer's specifications for maximum character input rate. At 3ØØ baud, 7-bit characters may come in as fast as 3Ø per second.)

To minimize hookup time, do not use the printer option while on-line with the host. Save the incoming text in RAM and upon completion of the hookup, turn the printer option on and use the D command to get a hard copy of the data.

To toggle the printer option, simply type: P <ENTER>. The new state of the option (ON or OFF) will be displayed and the menu prompt will return.

Q Quit -- returns control to TRSDOS-16. If there is data in the RAM buffer, it is lost; i.e., you cannot restart TERMINAL and recover the date.

R Toggle RAM Buffer Option -- (Interactive Terminal Mode only) lets you save in RAM some or all the data received by "opening" and "closing" the RAM buffer. With this, you can examine the data later with the D command, or save the data in a disk file with the C command.

When you open the RAM buffer, you can either reset it or retain its current contents. If you retain the contents, new incoming text will be loaded after the existing text in the RAM buffer.

To toggle the RAM buffer option, simply type R <ENTER>. The new state of the option (OPEN or CLOSED) will be displayed. If you have just opened the buffer, you will receive the following prompt:

```
RAM Buffer Now Open
Reset RAM Buffer? (Y/N) ..
```

If you type Y <ENTER>, the buffer will be reset and previous contents will be lost. For more information, see "Using the RAM Buffer".

S Perform System Command -- enters the operating system and allows you to enter a TRSDOS-16 system command. After it executes the system command, control returns to TERMINAL's Menu. A few TRSDOS-16 commands and programs automatically return to TRSDOS-16 Ready. If you execute any of these commands while in TERMINAL, control will not be returned to TERMINAL, but to TRSDOS-16 Ready.

T Enter Terminal Mode -- directly enters the Interactive Terminal mode. When in this mode, press <BREAK> to return to the Menu.

V Toggle Video Filter -- filters out data characters which produce undesirable results when output to the display.

When a character such as ESC(H'1B) is output, it causes Terminal to clear the screen and home the cursor. With the video filter option, you can prevent this by "filtering" these characters from the display. If the RAM buffer is open, they will be saved in RAM, regardless of the state of this option.

The codes (given in hexadecimal) which this option filters are:

Ø1,Ø2,Ø3,Ø4,Ø5,Ø6,Ø7,ØB,ØC,ØE,ØF,
1Ø,11,12,13,14,15,16,1E,1F

If Terminal receives any of these characters while the video filter is on, it will display a "±" in its place.

W Set/Change Prompt Wait Character -- allows you to toggle this feature on or off and set a special character as the prompt-wait character to cue the terminal to continue the transmission.

This allows you to use the high speed transmit from RAM mode, even when the host program can accept only one line at time. (It does not affect operation in the Interactive terminal mode.)

Normally, the host program sends a prompt such as a question mark when it is ready for the next line. (A line is defined as a string of characters terminated by a carriage return H'ØD'.) In the Interactive Terminal mode, you simply wait until this prompt is displayed; the prompt wait feature makes TERMINAL do the same thing while in the transmit from RAM mode.

You can define the prompt wait character as any keyboard character from H'2Ø' to H'7F'.

Leave the prompt wait feature off when the host program is simply storing characters as received and is not sending a ready-for-next-line prompt. TERMINAL will transmit text from RAM in a continuous stream.

NOTE: When you start the transmit from RAM (X option) or auto sign-on (O option), the first line is sent immediately, without waiting for a prompt. Each subsequent line is then sent after the prompt is received.

To turn the prompt wait feature off, press <HOLD> when the program asks for a new character.

X Transmit RAM Buffer and Enter Terminal Mode -- enters the Transmit from RAM mode where it sends the current contents of the RAM buffer to the host program. When the entire buffer has been sent, TERMINAL goes into the Interactive Terminal mode. For details, see "Transmitting from RAM."

To stop transmission from RAM, press <BREAK>. Control returns to the Menu.

USING THE RAM BUFFER

You can use the RAM buffer to store incoming text (R option) and prepared text from a disk file (G option). This, in turn, allows the stored files to be rapidly sent. The RAM buffer helps reduce costly hookup time by letting you perform time-consuming operations -- preparing data or printing it out -- while TERMINAL is off-line.

If the buffer is filled during a load from disk (G command) or while receiving data in the Interactive Terminal mode, a warning message will be displayed and the buffer will be closed. If you are loading a disk file, control returns to the Menu mode and the buffer will be filled with the data that was loaded.

If you are in the Interactive Terminal Mode, normal I/O will continue, except that it will no longer be saved in the buffer.

Saving the RAM Buffer

When the buffer is filled in the Interactive Terminal Mode (or when you suspect it is almost full):

1. Transmit a pause or break control character to the host program.
2. Press <BREAK> to return to the Menu.

3. Use the C command to copy the contents of the RAM buffer to a disk file.
4. Reset the RAM buffer with the R command.
5. Use the T command to return to the Interactive Terminal Mode.

Opening and Closing the RAM Buffer

To save portions of the text during I/O of the Interactive Terminal Mode, use the R command. Prior to receiving the data you want to save:

1. Transmit a pause or break control character to the host program.
. Press <BREAK> to return to the Menu.
3. Use the R command to toggle the RAM buffer status. If it is off, toggle it again to open it. If it is already open, you have the option of resetting it or leaving it as is. To add new data onto the end of old, do not reset it. To delete old data, reset it.
4. Enter the T command to return to the Interactive Terminal Mode.
5. Direct the host program to resume transmission. The data will now be saved in the RAM buffer as it is received.

Saving the Options You Have Selected

You can save these options in a customized version of TERMINAL:

- Prompt wait and definition of prompting character
- Definition of break character or sequence from host program and assignment of a break key on your computer
- <F1> and <F2> characters
- Line feed option
- Printer option
- Self-echo option
- Video filter option
- Auto sign-on option
- Speed of transmit from RAM and auto sign-on (as set by the "up"and "down" keys). Once you find out the maximum rate of transmission the host program can handle, you can set that as the default rate.

After you select the options for your customized version, use the DUMP command to create a new program file. Terminal resides from H'3ØØØ'. Give this customized program a name other than TERMINAL -- and leave the TERMINAL program in its original configuration.

For example, to call your customized version MINE, type:

```
--Enter Menu Selection.. S  <ENTER
Enter TRSDOS Command (1-79)
DUMP MINE START=3ØØØ, END=3FFF   <ENTER>
```

Now you have a customized version of TERMINAL that starts up when you type:

```
MINE <ENTER>
```

SAMPLE USES

To Send a Program

If you intend to send a program via TERMINAL, you must first store it in an ASCII-format disk file. When you have done this, set up the modem and initialize Serial Channel A as explained previously. See your modem manual for the appropriate procedure for getting on-line.

For example, to send a disk file named "SORTDATA" on Drive 1, get on-line and load the TERMINAL program. Enter the Interactive Terminal mode by typing:

```
Enter Menu Selection.. T <ENTER>
```

Go through the necessary sign-on and when you want to send the program, press <BREAK> to return to the Menu. (If you want to use the prompt wait option, select it now.) Then type:

```
--Enter Menu Selection.. G <ENTER>
Enter Filespec (1-34)
SORTDATA:1  <ENTER>
```

TERMINAL will now load the program into RAM. Make sure the host is ready to receive the program, then type:

```
--Enter Menu Selection.. X  <ENTER>
```

The Terminal will now send the program to the host. Press <BREAK> if you want to stop the transmission for any reason. This returns control to the Menu. Otherwise, upon completion of the program transmission, control will go into the Interactive Terminal mode.

To Receive a Program

If the host program you are communicating with is ready to send you an ASCII-formatted program, you must first go to the Menu and type:

```
--Enter Menu Selection.. R <ENTER>
```

If the buffer is now closed, repeat this command and TERMINAL will display the message:

```
RAM Buffer Now Open
Reset RAM Buffer (Y/N) Y  <ENTER>
```

This opens and clears the buffer. Now return to the Interactive Terminal mode (T option) and tell the host to send the program.

After you receive the entire program, press <BREAK> to return to the Menu; then type:

```
-- Enter Menu Selection.. C  <ENTER>
Enter Filespec (1-34)
NEWPROG  <ENTER>
```

This copies the program in RAM into a disk file named NEWPROG.

ERROR CONDITIONS

In the Interactive Terminal Mode, Transmit from RAM Mode, or during Auto Sign-on, TERMINAL may detect errors related to the serial transmission. In such cases, it will display an error message in reverse video and, if possible, will continue normal I/O.

The error messages that may occur while you are in the Interactive Terminal Mode are:

P Parity error. The received character will be after the P.

O Over-run. At least one character has been received but not picked up by TERMINAL. This occurs if you are in the Menu mode while the host program is sending characters.

F Framing error. The received character will be displayed after the F. Check your SETCOM parameters to see that they match the requirements host program.

The following errors can occur in any mode except the Menu:

DATA CARRIER LOST Check the telephone/modem connection.

DATA CARRIER RESTORED TERMINAL will pause until the carrier is restored. If TERMINAL was transmitting from RAM or sending an auto sign-on, it will start over at the beginning of the text when data carrier is restored.

BREAK SEQUENCE RECEIVED If the host program sends a break sequence, or sends TERMINAL'S own break character, this message will displayed; if TERMINAL is in the transmit from RAM or auto sign-on mode, it will pause until the next character is received from the host.

TIME

```
TIME
```

Displays the date-time string. It works the same way as the DATE system command. The format for the date-time string is:

```
WED MAR 25, 1981 84 -- 16.24.34
```

for Wednesday, March 25, 1981, the 84th day of the year, 4:24:34 p.m.

Example

```
TIME <ENTER>
```

VERIFY

```
VERIFY {options}
```

Sets the verify function ON or OFF. When ON, TRSDOS-16 checks data after each write operation.

The options are:

ON tells TRSDOS-16 to check all data, as it writes it

OFF turns VERIFY OFF

If you do not specify an option, TRSDOS-16 returns the current status of VERIFY.

When VERIFY is on, TRSDOS-16 reads after each write operation to ensure that the data is readable. If the data is not readable, TRSDOS-16 retries and, if data is still not readable, returns an error message.

If you need to increase the speed of TRSDOS-16, turn VERIFY OFF.

NOTE: TRSDOS always verifies directory writes. The VERIFY function checks only user writes (writing data into a file).

Examples

```
VERIFY ON <ENTER>
```

turns the verify function ON.

```
VERIFY OFF <ENTER>
```

turns the verify function OFF.

```
VERIFY <ENTER>
```

displays the status of the verify switch.

VERSION

VERSION

Displays the version number of the operating system currently in use.

Example

```
VERSION <ENTER>
```

returns -- Version: 4.1 -- indicating the major version level "4", minor version level "1".